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# SOIL CONSERVATION

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# SOIL CONSERVATION •

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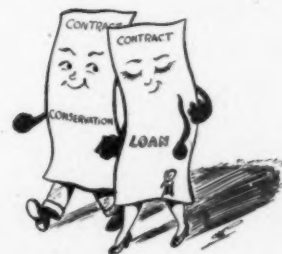
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### CONSERVATION PROTECTS LOANS.—

The financing of soil and water conservation measures is being given consideration by a large life-insurance company in its farm-loan program in the Roswell, N. Mex., area and other parts of the Southwest, according to E. O. Moore, chairman of the Hagerman-Dexter Soil Conservation District.

"This development," Moore said, "should be of interest to farmers and ranchers who wish to improve the productive capacity of their properties. The lending program is a definite encouragement to the conservation of water resources and a means of helping farmers to enjoy the increased benefits that accrue from proper land use."

The Mutual Life Insurance Company of New York has some \$1,000,000 invested in farm and ranch loans in the Roswell area and a substantial portion of this is being

(Continued on p. 84)

### WELLINGTON BRINK

Editor

Art Work by

W. HOWARD MARTIN

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with approval of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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**FRONT COVER.**—This photograph by Hermann Postlethwaite shows the Henry Lakin farm about 2 miles south of Jefferson, Md. This 200-acre dairy farm has a complete soil and water conservation plan, including farm pond, contoured fields, and other integrated practices.

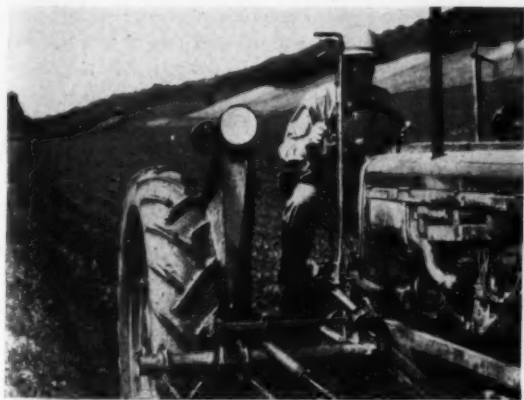
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From the hills bordering Jones Creek in the distance, water formerly poured down to flood bottom lands in foreground.



Clayton McCue at drop spillway on his father's farm, where a 40-foot gully used to run.



Roy McCue cultivating contoured corn on upper reaches of Jones Creek.

## JONES CREEK PAYS OFF

By R. H. MUSSER

With soil conservation steadily assuming a more important place in the Nation's flood-control picture, more than usual interest attaches to an economic study recently completed on the Jones Creek watershed. This watershed is located in the Harrison County Soil Conservation District and the Soldier-Maple Valley Soil Conservation District in western Iowa. Jones Creek was one of the earliest examples of soil conservation treatment on an entire watershed in the United States.

There are few if any other watershed programs in the entire Midwest which have been operating long enough for us to evaluate long-range results. But the Jones Creek program was applied 10 years ago. And the study recently completed proves conclusively that the investment made there is paying off in benefits to individual farmers and to the public at large on a ratio of \$9 benefit for each dollar expended.

Among those who conducted the study under the direction of Frank H. Mendell, state conservationist for the Soil Conservation Service at Ames, were George Lamp, district conservationist at Sioux City, and Gunnar Brune. Brune is an economist and sedimentation specialist from regional headquarters in Milwaukee.

NOTE.—The author is regional director, Soil Conservation Service, Milwaukee, Wis.

Soil borings and measurement of sedimentation were made throughout the Jones Creek area. Results of improved cropping systems and land use were evaluated and all of the farmers who took part in this early project were interviewed. Present land conditions were also weighed against the conditions which prevailed before the program started.

At that time, gullies were a major problem because slopes are steep and water rushed down from them at breakneck speed. This 1,400-acre watershed, which is located about 6 miles southwest of Moorhead, Iowa, is typical of the steep land along the bluffs draining into tributaries of the Missouri. Sixty-six percent of it slopes more than 16 feet to the hundred, and the silt loam soil is highly erosive.

Under these early conditions, upland farmers were damaged both by gullies and sheet erosion. Tons of soil from their sloping fields were being carried down on the bottoms along the Soldier River, and valley farmers were spending thousands of dollars to dredge this hill soil from their drainage ditches.

This work was started before the soil conservation district was organized. The farmers are co-operators with the district.

The work on Jones Creek was done between 1937 and 1942, the bulk of it being completed by 1940. Technicians of the SCS first helped farmers apply a comprehensive program of improved land use. Approximately 80 acres of badly eroded land was retired from cultivation and developed as improved pasture. This had been producing large amounts of silt and trees. All of the remaining cultivated land was converted from straight-row farming to contouring. Existing pastures were also improved.

This new pattern of better land use was then bolstered by the construction of eight structures. These include five earth dams with concrete chute spillways and three with sod spillways. Three miles of gullies ranging up to 40 feet in depth were graded in and developed into gently sloping grass waterways.

All of this new water-disposal system leads into a 9-acre reservoir on the farm of W. R. Jones. This was formed by the largest of the earth dams. It is 48 feet high and 350 feet long. In this reservoir, 160 acre-feet of floodwater can be stored temporarily, feeding gradually down through a drop-inlet tube to the waterways below it.

The Soil Conservation Service contribution on this project was largely equipment and labor supplied by the Moorhead CCC camp and later by the Denison CO camp.

Upland farmers stood the major cost of converting their farming operations to the new soil-conserving pattern. And bottom-land farmers, who were being directly benefited, furnished money for materials. Four of them, Roy Seabury, Mrs. Ollie Johnson, Arthur Coe, and Sam DeCou, contributed \$2,800. "We don't regret it," Seabury said.

Today, approximately 10 years after the last shovelful of earth went on the Jones dam, the water-disposal system is still functioning perfectly.

The sediment pool above the Jones dam was designed to last for 20 years. It has already been in service 10 years, and the recent sedimentation study indicates it will function for at least another 10. The annual loss in storage capacity has been 6.22 percent, which is about the amount anticipated by design engineers.

In their report on the recent study, engineers state: "It should be pointed out that the reservoir could have been designed with a larger capacity if a longer period of storage had been desired. However, we felt that as conservation practices on the watershed became more effective over a period of 15 or 20 years, less sediment would be produced and a desilting basin would no longer be required."

That this conclusion was correct is indicated by the 10-year study. Before the program was applied, the watershed was losing approximately 21.3 acre-feet of soil per square mile annually. This soil loss has now been cut to 2.5 acre-feet, the study revealed, which is a reduction of 88 percent.

All but 0.4 of an acre-foot of this silt is being trapped and held in the upland reservoirs so that the amount of sediment going into the drainage ditches on the lower bottoms has been cut a total of 98 percent.

As to the bottoms where approximately 200 acres of crops were wiped out at frequent intervals, flooding has been eliminated entirely.

W. R. Jones operates 360 acres of land, 165 acres of which is under cultivation. "Before we put in these dams," he said, "20 acres of my best bottom-land crops flooded out regularly. It hasn't flooded since we finished this project. Two years ago this land that used to flood produced 100 bushels of corn.

"Before the program was put in, I had seen





Water impounded above the large Jones Creek dam provides recreation for Iowa farm boys.



W. R. Jones inspects plantings in a wildlife area on his farm.



Arthur V. Johnson says: "My 50 acres of bottom land used to flood at least every year. It has not flooded, however, since the Jones Creek project was finished."

water come rolling down here from the hills and the creek would be up to the bridge in 30 minutes. It would flood the whole bottom. It doesn't do that any more. The water backs up behind the

dam and the outlet feeds it out gradually so the ditches below never overflow. Our flood problem is over."

Just below the Jones land is the 311-acre farm operated by Lyle H. Carrigan. The watershed-treatment program had been completed before Carrigan moved on this farm. "I'd never have moved on this place without it," he said. "I knew how it used to flood. There were about 60 acres of this bottom land that would flood out; some of the best cornland, too.

"We haven't had a flood down here since they finished the Jones dam. The ditch used to get out all over the bottoms but since the work was done up there I have never seen it half full. It's done wonders for all of us."

The 328-acre bottom-land farm below Carrigan is owned by Roy Seabury, Pisgah businessman, and is being farmed by William Hall. "We've had as much as 150 acres under water," Seabury said. "It covered the bottoms from hill to hill and we lost a lot of crops. I'd say from 25 to 40 acres would flood every year. And some years we'd lose 75 or 100 acres of crops.

"All of this stopped when they put in that water-disposal system on Jones Creek. I'm sold on that approach to upland flood control 100 percent. I couldn't be otherwise. It's functioning perfectly and the money we put up was the best investment we ever made."

Arthur V. Johnson farms 280 acres below the Seabury farm. He had 50 acres that flooded at least every other year. "The work on Jones Creek not only solved our flood problems and saved us a lot of damage from crop loss," he said, "but it is also saving us a lot of money on maintaining our drainage ditches."

The source of this water and silt which formerly poured down on the bottoms from the roof of Jones Creek was found principally on four upland farms, and these hill farmers were being damaged as badly as many of their bottom-land neighbors. All of them were losing soil and water needed for crops.

Farmers on the upper watershed include Thayer Brown, Harry Rice, Roy McCue, and his son, Clayton McCue. Typical of the general feeling about the watershed program was the sentiment expressed by Roy McCue.

Three of the dams are located on his 200-acre farm and four more are located on the 240-acre farm of his son, Clayton.

"This has been a fine thing for all of us," the elder McCue said. "I had a gully out in the middle of that field 25 or 30 feet deep. Now there's a grass waterway a mile long where I mow hay for my livestock. My land and Clayton's is all being farmed on the contour and our yields are going up steadily. We don't have any gully trouble now."

The economic study, however, went beyond the successful operation of the project. Public money cannot be used on any watershed program, no matter how well it may be liked locally, unless the dollars-and-cents benefits are greater than the actual costs.

The analysis of Jones Creek after 10 years indicates that this project is paying off at an estimated ratio of 9 dollars for every dollar spent. However, if proper maintenance is provided, benefits will continue to accrue.

For the 10-year period the program has had a total benefit of \$321,110, according to close estimates. This includes reduction in crops losses and in cleaning sediment out of drainage ditches. Six or seven acres of land above the structures have also been reclaimed. This is now farm land where only gullies used to grow. Other benefit items are reduction in loss from both sheet and gully erosion and increased crop yields.

The estimated total cost of the project, based on 1940 prices, was \$34,555. On the basis of present prices, the report states the total cost to both the government and landowners would be about \$80,000, which is still less than one-fourth of the benefits up to the present time.

**PUTTING TREES ON GUARD.**—Based on experience with field windbreaks planted a decade ago, Johnson brothers, near Rolette, N. Dak., have started a program to establish similar windbreaks at 80-rod intervals on all the cultivated land in their 1,240-acre farm.

The land protected by the trees and also strip-cropped has been completely established in this area where wind erosion is a serious problem. The trees also help to keep snow from being blown away, thus allowing it to melt and soak into the fields.

"These trees," they say, "have shown their worth during the strong, spring winds. Plowing has usually begun by then, so the fields are bare and most likely to blow."

Johnsons' tree-planting schedule is part of the complete conservation plan they worked out in cooperation with the Rolette County Soil Conservation District. Included in the plan are complete strip cropping, use of grass in the crop rotation, and management of crop residues to keep them on the surface as much as possible.

## DISTRICT PROFILE

KAY MOORE  
of  
TEXAS



Kay Moore in the role he prefers.

When Kay Moore came home from World War II he found a man-size job waiting. The Moore brothers—Kay, Jay, and L. H.—had 1,400 acres to farm in the New Home neighborhood near Lubbock on the Texas High Plains.

But that wasn't all. Kay Moore soon found himself right in the big middle of soil conservation district work. He was elected a supervisor of the Lynn Soil Conservation District, then made secretary-treasurer.

In 1949 Moore was named a director of the Association of Texas Soil Conservation District Supervisors. On top of that, he is secretary-treasurer of the Lynn County Farm Bureau. And he teaches a Sunday-school class and attends veterans agriculture classes, to boot.

"In my spare time I try to farm 500 acres of land," Moore says.

Farming 500 acres of cotton, sorghums, and irrigated crops, and running a string of livestock, are enough to keep one man busy from sunup to sundown. But somehow Kay Moore manages to get in time for his "nonpaying" jobs.

Moore had a lot of time to make plans for his future on the farm back home, because he spent 2 years in an army hospital after the war.

He was a captain in a cavalry reconnaissance squadron, Eighty-seventh Infantry Division, in General Patton's Third Army during the last war. Just a few days before the war ended in Europe, he was wounded seriously. Then began his long hospitalization.

It was tough on a man with Moore's restless energy to have to slow down. He had had 9 years of army life. Before that, from 1936 to 1942, he had trained and ridden jumping horses for steeplechase events.

So when Kay Moore came home from the hospital he was rarin' to go. He hasn't slowed down a bit.

His brother, Jay, is a soil conservation advocate, too. He has a 160-acre irrigated farm in the High Plains. The Moore farms look like an oasis—in fact, all the farms in the New Home neighborhood do.

Farmers in the New Home neighbor group are all conservation farmers and they are finding ways of growing new cash crops where folks used to think cotton was the only thing that would flourish in their area. They are developing irrigated pastures and raising cattle, hogs, and sheep. They aren't worried about getting more land. They are trying to take care of what they have now and make it more productive.

The Moore brothers are typical of the New Home neighborhood. Jay Moore says he'd rather have his \$10,000 concrete-pipe irrigation system than another section of unirrigated land.

Crops that put humus back in the soil leave a protective cover or mulch on the land during the blow season. That's the answer to the wind erosion problem, Moore thinks.

—HOMER A. TAFF.

**130 MILLION GALLONS.**—Should they run into another severe drought, such as last year's, Allegany County (N. Y.) Soil Conservation District cooperators have an ace waiting in the form of 160 farm ponds. They have 130 million gallons of water in storage for spray, irrigation, and stock use—plus fire protection.

## IT WAS AN EXCELLENT YEAR

**T**HE 1950 record of the Soil Conservation Service received the following comment from Dr. Hugh Bennett, Chief of the Service, in a letter to all regional directors:

"I have just had a look at our accomplishments for the fiscal year 1950. They are exceptionally good and I want to congratulate you and those who work with you. We don't know what lies immediately before us with respect to facilities for getting work done this fiscal year, but I am hoping we can find ways for getting ahead. At any rate, we have good reason to be proud of last year's accomplishments. All of the regions made substantial progress.

"Technical assistance was provided to 2,199 soil conservation districts. Conservation surveys covered 31,400,000 acres—up 22.0 percent. Conservation plans were prepared for 132,752 farms (39 million acres)—up 20.1 percent. Altogether, combined conservation practices were applied on 26 million acres—up 17.9 percent. Technical services to districts amounted to 9.2 percent more than during the preceding fiscal year.

"Average costs per acre for surveys, planning, and treatment decreased from \$1.80 in 1949 to \$1.67 in 1950—a reduction of 7 percent.

"The soil and water conservation work completed in the fiscal year 1950 was equivalent to 2.7 percent of the total conservation job. This was nearly three times as fast as was our progress in 1943, and more than double our rate in 1945, although facilities had not been increased in any such proportion.

"I am certain that the percentage of the job done annually can be raised to around 4 percent. Until our work with neighbor groups gets into full swing, we will not have done our best. . . .

"We are now well into fiscal year 1951, but if we glance back at 1950 I believe we can all find plenty of encouragement to make this year even better than that. Let's try to do so with all our strength. We are a progressive organization. Let's not stop being progressive, come what may."

# SOIL CONSERVATION RESEARCH IN THE SOUTHEAST

By B. H. HENDRICKSON

**A**GRICULTURE is continually faced with serious problems, but the most puzzling of all is what to do about poor land.

Many of our farmers, especially in the South, have left the farms and gone off to the cities to hunt jobs. Poor soil and the outworn kind of farming that many of them practiced are the principal reasons.

On the face of it, the situation demands that we go to work and find methods and types of farming that do fit our conditions. And how is this to be done?

Some say we should establish productive close-growing cover crops or winter grazing by fertilizing heavily. But it is not quite that simple.

The old way was by trial and error—a costly method. That was the method of our ancestors, coming into a new and virgin country. I daresay that none of us now living can fully comprehend the disappointments and failures of the pioneers. Gradually, they found farming methods that worked pretty well. First, they sought to produce food and feed crops, then cash crops and products for market. But then, too often, there followed a period of exploitation at the expense of the soil upon which we all depend.

Later, agricultural colleges were formed, agricultural experiment stations established, and as a result, newer and better methods of farming gradually developed. Commercial fertilizers, unknown to the pioneers, came into general use. Education and extension was followed by financial and technical aid to farmers, which has been greatly expanded in recent years. Efficient production became the watchword and still is essential to profitable farming. But until about 20 years ago, not a great deal was being done to combat erosion.

Specialized soil conservation research was then undertaken at a few localities in this country in order to find the basic facts. Where, when, and under what soil, slope, and crop-cover conditions was the erosion loss most serious? Finding out

these and other basic facts was a prerequisite to a scientific job of designing conservation-farming methods for even one of the many problem areas. Research was a necessary prelude to the action program that began in 1933.

Agricultural workers have learned a lot of new facts about our land in recent years. Conservation research stations and special projects are continuing to supply the new information on which our progress in soil conservation so largely depends.

Some people, who may think that by now we must surely have enough agricultural research, farm application, educational and demonstration work under way, should remember this: At every flood stage many of our large streams still run bank-full with muddy water carrying away to the seas in a matter of seconds the equivalent of all the topsoil of an entire farm. Each fraction of an inch of topsoil lost means damage to the land. Erosion invariably means the loss of a valuable asset to the farmer, and to the Nation. Under the least damaging conditions, erosion always costs money and extra effort to compensate for its land-deteriorating effects. At the Southern Piedmont Conservation Experiment Station, we have found that the loss of topsoil has resulted in markedly lowered crop yields of cotton, corn, and various other crops.

Basic facts, properly interpreted, permit the formulation of plans. Let me quote some examples:

(1) At the Southern Piedmont Conservation Experiment Station, soil and water losses from sloping row-crop land were found by research to be much greater during the spring and summer than during fall and winter. In fact, three-fourths of the annual soil losses were found to occur during 6 months of the main growing season, rather than during fall and winter, as many had previously supposed.

(2) Certain adapted close-growing summer legumes were found to be highly protective both as growing cover crops and also as stubble-mulch covers during the winters. In fact, the stubble-mulch aftermath following harvesting was found

NOTE.—The author is project supervisor, Southern Piedmont Conservation Experiment Station, Soil Conservation Service, Watkinsville, Ga.



to be more protective than any winter cover crop planted for that purpose.

(3) When turned under in the spring in preparation for a year of summer row cropping (and here was the biggest surprise), the legume crop residues made the soil more absorptive, much less erosive, and much more productive. Furthermore, we now know that the consistent use of a practical conservation rotation of this type grown over a period of years on cropland of average slope reduced water losses by one-half, soil losses by seven-eighths, and increased the per-acre crop yields materially. Soil aggregation and organic matter content were also improved. We call this "progressive conservation." It means real progress.

These favorable results have focused attention on the potentialities of good conservation agronomic practices. It is to be noted that these agronomic methods accomplish much more than merely conserve the soil. They improve the soil and increase its productive capacity while maintaining protection.

These effects are of great significance to fertilizer specialists, crop specialists, agricultural engineers, farm economists, and many others in allied professional agricultural fields. Much is to be gained by mutual hearty cooperation and exchange of factual information, in order to accomplish ultimately the over-all aim of all agricultural workers, which is to help establish an enduring, prosperous agriculture.

Soil conservation research is particularly directed toward the land—all of it, its best utilization. For profit, for efficient production on "good land," only? Decidedly no! It includes protection, restoration, improvement to adequate productive levels, and maintenance—good land use for every acre.

The ultimate aim is a fully developed, adapted, sustaining agriculture that will stand the test of time. Never before has there been a land program as comprehensive as this.

In parts of this country—notably the Southeastern States—we hear much talk about the "revolution in agriculture" that is now in progress. As a matter of fact, we are now engaged in changing over from the old to the new; from the cotton-corn economy to a better balanced crop-livestock pattern. This is also a conservation pattern, designed to protect and improve our farm lands. We all agree now that it must be a conservation pattern in order to reach our ultimate goal.

At this stage, how many of us know the answers to the problems that lie ahead?

It is characteristic of agriculture that it continually faces perplexing problems. Farmers, busy making a living, have little time or opportunity to experiment. They cannot afford to fail. There are many failures, along with successes, that mark the history of all research. And there is no end to the challenges in the program in which we are engaged.

In this fast-moving scientific age we can ill afford to sit back complacently and say, "We know enough now, let's apply what we know." By all means, speed the application, but do it the time-tested way to avoid blunders and be sure that our work is sound and based on research.

There is no known substitute for the tested results of research, to keep us from getting "bothered," like the aged Negro who said:

"Nossuh, Boss, 'taint what ah don't know that bothers me, it's what ah believes to be true which ain't so!"

While marked progress has been made in reducing soil and water losses, much needs to be done.

We need, first, a better understanding of our soils, both in the condition we now find them in 1950, and as to their potentialities under good conservation management. This, in itself, is a large order.

Our SCS conservation surveys and the grouping of soils according to land-class capabilities have greatly facilitated conservation farm planning. But we need to know more about soil permeability and infiltration capacities, and how to evaluate the various factors involved in the wide differences that occur.

If infiltration and permeability of an upland agricultural soil, for example, can be increased, then volume of runoff water will be reduced, erosion loss decreased, the growth of crops generally benefited, and flood hazards lessened.

Wet lands often are difficult to drain—they become much less difficult if they can be made reasonably permeable. The grower who uses supplemental irrigation during dry spells wants the soil to soak up water rapidly. He, too, is interested in keeping his soil permeable.

Other physical characteristics of soils have direct relationships to conservation soil-management methods.

Contributions that soil conservation researchers can make to the science of hydrology, especially

with reference to the control of water as it affects conservation agriculture and reduction of the flood hazard, are manifold and important.

Forests, cover crops, and mulches protect the soil surface from the direct impact of pelting raindrops, greatly increase infiltration, and reduce runoff. However, the control of overland flow of runoff occasionally resulting from excessive rates of rainfall remains a serious problem. Studies of the design, construction, and maintenance of field terraces and meadow outlets need to be continued, especially with reference to farm-machinery problems that are involved. Land drainage methods, to include the control of ground-water levels, are pressing problems in extensive wet-land areas in the Southeast. Supplemental-irrigation methods adapted to the varied conditions of soils, slopes, crops, and water supplies need further investigation.

Studies in the realm of plant ecology are especially significant. We need additional studies with introduced plants and with many new plant combinations and successions to determine the effective ground covers under a wide variety of conditions. Upland pasture-development possibilities have focused attention on the need for studies of this type, for the reason that successful pasture plants are largely on their own and must succeed and perpetuate themselves in spite of grazing and trampling and the competition of various species of vigorous weeds. The development of plowable pasture, grass-legume sods that may form the "base crops" for improved conservation rotation practices, is a vital need in the Southeast.

Over the whole vast area of the Southeastern farming lands, we need competent investigations to better design, develop, and test practical cropping methods of conservation type that will be most effective for soil and water conservation under the diverse conditions found in this area, and to meet specific land-use requirements. Some 35 such cropping methods are under test at the Southern Piedmont Conservation Experiment Station, Watkinsville, Ga., but this station is the only one in this region that has concentrated on this type of investigation for a number of years.

The South may well become one of the richest agricultural sections of the United States by reason of its long growing season, adequate rainfall, and responsive soils. But before this attainment can be reached, there must be marked changes

in methods. In the hilly sections particularly, large acreage reductions in row crops and corresponding increases in close-growing forage crops and pastures are inevitable, due to the erosion hazard.

Practically all of the crops that hold and improve the soil are utilized as forage. These crops have a relatively low acreage value. This situation calls for more efficient land-use methods than has been necessary in the past in the production of most of the high-value row crops. For this reason, additional research ought to be directed toward the solution of practical land-use problems involved in forage-crop production on the varied land classes, soil types, and soil-productivity levels encountered in the Southeast.

One of the really important contributions to the agricultural sciences has been the discovery by Soil Conservation Service researchers of the role of close-growing crop residues in conservation cropping practices. Crop-residue management—including stubble mulching—needs further investigations.

Certain crop residues are potent factors in erosion control, and soil improvement as well. A few years ago no one would have thought that lespedeza residue turned into the soil could possibly reduce erosion during the following row-crop season by two-thirds, but it has done so repeatedly in the Southern Piedmont. If residues can be retained more nearly on the soil surface, it is known that soil losses will be further reduced because the litter can then serve to break the force of pelting raindrops that otherwise churn up the unprotected mineral soil, disperse it, and stimulate soil loss into the overland flow of surface runoff waters.

Climatic and physiographic hazards peculiar to certain sections, or problem areas, of the Southeast need further study as a basis for determining the feasibility of establishing certain types of crops, covers, and uses for particular classes of land.

Finally, we will end this incomplete list of soil conservation research needs in the Southeast by urging that the most effective methods we now know be demonstrated in various parts of the Southeast on experimental conservation farms where adequate records can be kept of all operations. One of these 100-acre, tenant-operated conservation farms has been a going business proposition on part of the lands of the Southern Piedmont Conservation Experiment Station since 1941.

No single research endeavor has meant so much to the thousands of farmers who come to the station for information as this one farm. It illustrates the practical application of conservation cropping methods according to land-class capabilities of a typical farm. It includes cash crops, pasture development, livestock operations, adequate diversity of crop and livestock products, good labor distribution, equitable tenant-landlord relationships, and good profits for both—with substantially increased inherent productive value of the farm land as a by-product.

Soil conservation research, all of which is co-operative with the State experiment station systems, needs to be supported and extended to serve more of the diverse problem areas in this country. And such research, set up on a sufficient scale to include practical demonstrations under field- and farm-operating conditions, can become a center of great educational value to the thousands of farmer-visitors who come to hear, to see, and to learn about soil conservation and its benefits. What actually has happened in Georgia, and elsewhere, is that over the past decade large numbers of farmers have made tours to experiment stations. Many of them either have gone ahead and put into practice on their own farms methods they have seen to be proved soil conservation practices, or have voluntarily sought advice and assistance of work unit conservationists and county agents in their home counties.

It is a fact that soil conservation research results command respect, especially when presented in their proper setting, namely, on the land. Large numbers of farmers will copy successful land-use methods provided that they are practical, promise to be profitable, and fit the conditions on their own farms. We need more of this type of research.

Some soil conservation research must be of basic technical character. But the popular appeal of demonstrated practical research results must not be overlooked, for in the last analysis it is the farmer who must apply conservation methods over the broad areas of our Southland.

**ALL READERS NOTE.**—Does your copy of **SOIL CONSERVATION** Magazine arrive in good condition? Are you pleased with the way it is wrapped and mailed? I shall be glad to have your comments by postcard or otherwise.

**WELLINGTON BRINK, Editor.**

## GRASS-AND-CATTLE FARMER



Henri P. Watson.

By V. E. AHLRICH

**HENRI P. WATSON**, chairman of the Holmes County Soil Conservation District commissioners, is highly respected by both white and colored people in this part of Mississippi. The reason: His continued efforts to help others.

This mild-mannered, soft-spoken man lives in Lexington, county seat, where he was born fifty-odd years ago. After receiving his degree from the University of Mississippi, he studied agriculture at the University of Illinois and was offered a teaching job there. Instead, he chose to farm back home.

Looking after his 2,000-acre plantation in the Mississippi Delta and a 2,115-acre farm 4 miles west of Lexington keeps Watson pretty busy. But he finds time to take vacations and to render public services. Usually, he vacations in the Northwest, in Florida, or in South America. His visit to

NOTE.—The author is district conservationist, Soil Conservation Service, Grenada, Miss.

Argentina last year was motivated by a desire to learn more about grass-and-cattle farming.

As chairman of the Holmes district commissioners, member of the Production and Marketing Administration committee, member of the soil conservation committee of the influential Delta Council, and member of the flood control committee of the State Association of Soil Conservation District commissioners, he finds plenty of outlet. He is a Rotarian and an elder in the Presbyterian Church.

Watson's deep-rooted love of soil makes him an enthusiastic supporter of wise land use. He's always seeking better ways to conserve soil and water.

Watson began in 1940 to change from row crops to grass on his big farm near Lexington, where he spends most of his time. This switch was completed in 1943. Watson realized that the rolling-to-steep land, with an occasional creek or branch bottom, was better suited to grass-and-cattle farming. He also concluded that grass was more profitable and required less labor, a scarce item during the years when his son, his only child, was at war.

A total of 1,114 acres of grazing crops keeps Watson's 300 Herefords well fed. Tall fescue, Dallisgrass, Bermuda-grass, lespedeza, wild winter peas, oats, Ladino clover, white, hop, and crimson clovers cover this large acreage. About 300 acres of this pasture are in creek and branch bottoms ideally suited to grass. Nearly 400 acres more are in the rolling hills of deep brown loam which also grows grazing crops well. The other 414 acres are in rugged, steep but fertile hills typical of this part of the brown loam soil belt of Mississippi.

Watson started the growing of wild winter peas (also called Caley-peas) in the Delta. Today this legume is recognized as this area's best winter cover crop.

*(Continued from page 74)*

used for conservation measures and other improvements.

This means, to the lending institution, the best possible security for a farm or ranch loan.

The Mutual Life will require, of course, the same assurance of the borrower's ability to repay the loan that any good lending institution must have. But it believes that proper land use and economical water use can greatly strengthen this assurance. Where the management is good, furnishing the necessary additional funds to pay the cost of conservation practices is regarded as good business for the company, as well as of benefit to the farmer or rancher.

## WOODLAND'S VALUE DRAMATIZED FOR 20,000

By WILLIAM J. LLOYD

**N**EAR Seattle this spring, a large dairy farm had its face lifted. Some 20,000 people turned out for the event. It was the largest and most spectacular conservation display ever staged in the Pacific Northwest. Does the story sound familiar? Don't stop reading if it does. Because there's a story behind the story that you probably haven't heard.

When the King County (Wash.) Soil Conservation District and the Seattle Chamber of Commerce announced their plans for remaking the Marymoor dairy farm on the outskirts of the city, they advertised woodland management as one of the features of the day. They neglected to explain fully, however, the important part that materials taken from the woods were to play in the mammoth undertaking.

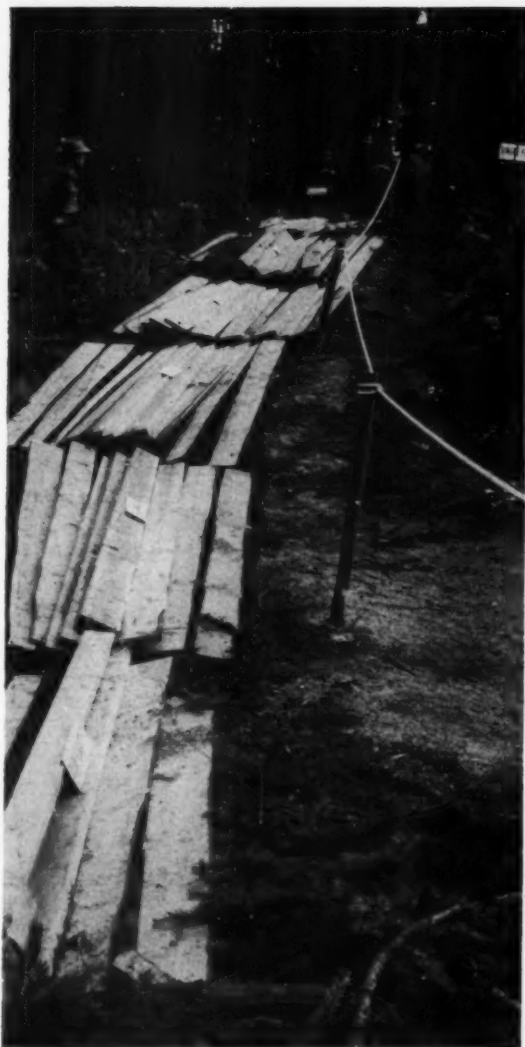
One of the first sights to meet the eyes of early spectators, was a string of long, narrow, wooden boxes which stretched for nearly a quarter of a mile across a soggy, swamp-like pasture. The boxes were cedar drains, to be laid end-to-end in trenches which would be dug later in the day by heavy power equipment. Before the day was done, the drain boxes would be buried as part of a badly needed underground drainage system.

Most spectators were amazed to learn that the lumber for the drain boxes had come from long-dead cedar trees, many of which had lain in the nearby woods as waste perhaps a hundred years or more. They were further intrigued to learn that the boxes were entirely of "home manufacture." Salvaged cedar logs and chunks had been snaked out of the farm woods a few days before and sawed into lumber on the spot by a mobile sawmill, set up on the Marymoor Farm.

Cedar boxes have been used for underground drainage in the Pacific Northwest for many years. Under certain conditions they are considered su-

NOTE.—The author is forester, Soil Conservation Service, Sedro Woolley, Wash.





This is how an "exploded" tree looked to spectators.

perior to tile. Many farmers prefer their wooden box drains. But until the Marymoor demonstration, few realized the ease and low cost with which they could obtain a cedar-box drainage system from their own woods.

While thousands of people milled about, the mobile sawmill continued to convert products from the woods into valuable materials for use on the farm or sale to nearby markets. An accompanying photograph shows part of the crowd which watched while the mobile unit made high-quality building materials from a continuing supply of second-growth fir logs.

Behind the steady stream of logs trucked to the saw during the day, was another conservation story. Just half a mile from Marymoor Farm lives a neighbor, Oscar Wellman, who owns and operates a peach and cherry orchard. Wellman has a 3-acre woodland, a dense 50-year Douglas-fir stand in which he takes great pride. Shortly before plans for the Marymoor event were announced, Wellman had begun excavation for a new home. Here were the ingredients for an added and unusual attraction for the face lifting. A new home requires lumber. A dense fir stand should be thinned. Thinning would produce saw logs. The mobile sawmill could turn logs into lumber. The sponsors and Wellman reached a quick agreement. The woodland was thinned. Logs were moved to Marymoor Farm during the day where they were turned into lumber along with the cedar slabs and chunks mentioned before. The lumber—more than 9,000 board feet—eventually went into the construction of a new home.

Many asked how Wellman's woodland looked after the thinning operation. The answer is: Far better than before. The thinning was planned to create improved growing conditions for straight, clean, healthy trees by removing trees which were crooked, crotched, limby, and were crowding the better-formed trees.

While spectators at the sawmill watched, an expert from the Bureau of Lumber Grades and Inspection of the West Coast Lumbermen's Association conducted a lumber-grading demonstration. He graded boards as they came from the saw, showing the crowd how and why each board was graded as it was. Over half the lumber graded better than No. 1 common. There was very little No. 2 common. To show the crowd some No. 3 and No. 4 common, boards were *borrowed* from another mill.

What happened to the slabs and sawdust? That's another conservation story. The slabs and edgings were "buzzed" into firewood for the wood-burning stoves on Marymoor Farm. The sawdust was used for bedding material in barns and mulching material in gardens and orchards.

Not far from the sawmill, 4-H boys showed the use of pentachlorophenol as a preservative treatment for round Douglas-fir fence posts. This practice has application on thousands of farms where young stands of timber can be thinned to provide needed fence posts.



Part of the crowd which watched a mobile sawmill convert woodland products into valuable materials used in the remaking of Marymoor Farm.

For those hardy souls who pushed on up the hill and into Marymoor's woods there was even more to see. First was a demonstration of the use of a minor forest product, sword ferns. These are highly prized by commercial florists. Collecting ferns in the woods is a fairly new industry in western Washington but it is rapidly assuming major proportions.

Beyond the fern picking was a portable chipper at work reducing slash, limbs, and small poles to chips usable as fuel, bedding, or mulch. This portable outfit demonstrated a multitude of possible uses. Farmer-spectators volunteered scores of ideas for using such a machine in their own woods.

Next was an "exploded tree" demonstration voted by most visitors as the "best thing I've seen." This was an 18-inch Douglas-fir tree which had been cut down and bucked into short lengths. Each length was then sawed into lumber and the lumber, slabs, bark edgings and all, laid back into their respective positions between the stump and unused top. The tree sawed out 452 board feet of lumber, enough to build a small chicken house. Each pile of lumber representing the particular log of the tree was labeled as to amount and grade.

The woodland-marking demonstration followed the "exploded tree." Here visitors were shown how the 70-year Douglas-fir stand could be thinned

to improve quality and increase growth of trees. Nearby, two men with a portable power saw bucked cull logs into firewood showing use of that type of equipment.

Final attraction of the woodland program was a shake-splitting demonstration. W. F. Peterson, a woodland cooperater of the Snohomish Soil Conservation District, was in charge. Splitting straight shakes, feather-tipped shakes, and shake boards for the visitors, Peterson spiced his demonstration with a line of patter that would have done credit to a professional circus barker. "Cedar shakes," Peterson pointed out, "can be cut from salvaged dead chunks, stumps, and slabs in almost any farm woodland. Surprisingly, two types of people use shakes—those who can afford *anything* and those who can't afford anything else and so are forced to fall back on their woodlands for this fine roofing material."

Behind the shake-splitter's humor and good-natured satire, however, was a significant fact that very few spectators missed. Farm woodlands are far more valuable than most people realize. The point was made clear to the thousands of people who included the woodland program in their day-long tour of Marymoor Farm. They saw with their own eyes how farm woodlands can supply valuable materials for farm and home use and supplement farm income besides.

# HE PIONEERED SOIL-DISTRICTS LEGISLATION

By J. E. CRITZ

**T**HE man who introduced the bill that became the first soil conservation districts law in the country isn't satisfied with what's been accomplished.

"Don't misunderstand me," says Elbert S. Graham, of Lowell, Ark. "We've gone places since Arkansas enacted the first soil conservation districts law back in 1937. But I'm impatient. This business of saving our soil is so vital, so deadly serious, that I want to see the job done all at once, overnight.

"To get the work moving faster, we need more technical help. Why, we have hundreds of farmers in this district waiting for technical help in mapping out a conservation plan and putting it on their farms.

"Lack of heavy equipment has handicapped our

NOTE.—The author is with the Soil Conservation Service, Fayetteville, Ark.



Graham prunes peach tree. Note orchard cover crop.



Graham and Orrin J. Henbest, SCS technician, go over a point in Graham's conservation farm plan.

work, too, though the county court has been most cooperative in hiring out county machinery to district farmer-cooperators. We are hoping to get the equipment we need to carry out our conservation program faster."

It was a stroke of good fortune for soil conservation that Graham was named chairman of the agricultural committee of the Arkansas House of Representatives in 1937. Soon afterward a model soil conservation districts law from the Department of Agriculture was placed in the hands of the agricultural committee chairman. It so happened that Graham was already interested in soil conservation. He had noted erosion on his own 250-acre farm and had taken steps to control it. He had been reading Hugh Bennett on the erosion problem and what to do about it.

So Graham took a serious, personal, and enlightened interest in the model bill. He studied it carefully before offering it to his committee. The committee studied it for 2 or 3 weeks. Graham had to overcome some opposition but finally the bill was reported out favorably to the House. Then the fight began.

The chairman ran into serious and stubborn opposition on the House floor. "It looked as though I were alone in trying to get this bill approved," he recalls. "It was argued by opponents that the farmers would be forced to do things they didn't want to do. Another stumbling block was that a lot of east-Arkansas farmers had lost their farms because of drainage district levies

and there was a great deal of bitterness from that part of the State."

Graham tried to meet each objection with logic. Finally, becoming exasperated, he shouted:

"This is the first time Uncle Sam has realized there are farmers in this country. Let's all get together on this bill for the good of all our farms."

The opposition melted. The bill passed the House, glided easily through the Senate, and the Governor quickly signed it. Thus, Arkansas went down in history as the first State to enact a law authorizing the creation of soil conservation districts, those subdivisions of State Government brought into existence by the vote of the affected landowners and managed by the farmers themselves.

Elbert Graham had to change a lot of his thinking. Like his contemporaries, as a boy he had been drilled in standardized ways of farming. He has always remembered one admonition from his father: "Whenever you plow a field, be sure the rows are straight." And from the way his dad spoke, Elbert knew he meant it.

When he grew up Elbert Graham began to abandon the old pattern. Noting the erosion that

was eating away his own farm, he built diversions and a terrace system to carry excess water off safely.

"I saw that I had to make the water walk, not run, down hill," he says. "That's still one of our major problems in Arkansas. And to make the water walk, we've got to have lots of grass—lots more than we have now."

In 1937, when he saw that his 70-acre apple orchard set out in 1901 was getting too old to produce well, he sawed down every tree and put all but 16 acres into pasture and meadow. In the 16 acres he planted peach trees.

That was his start toward a grass and hay economy. He has since pulled out 33 more acres of apple trees and replaced them with peaches, alfalfa, and pasture. He now has 44 acres in peaches, 42 in apples, 31 in alfalfa, (selling surplus hay), 10 in row crops (string beans), 15 in woodland that supplies his fence posts, and 100 in improved pastures of bluegrass, ryegrass, English perennial ryegrass, tall fescue, Korean lespedeza, white Dutch and hop clover. The pastures furnish ample grazing for his 50 head of Hereford cattle.

*(Continued on opposite page)*



Graham with some of the 11,000 broilers which are an important part of his diversification scheme.



# CONSERVATION'S NEW LEADER IN THE NORTHEAST

By HUGH F. EAMES

ON THE land, at radio school, over the seas, in engineering work all over the country, wherever he has been and in whatever he has done, George R. Heidrich, Shenandoah Valley farmer, has crowded a heap of living into his 48 years. He's gotten a lot out of life largely because he has put a lot of better living into the lives of many other people.

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NOTE.—The author is in current information, Soil Conservation Service, Upper Darby, Pa.

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*(Continued from preceding page)*

In 1931 Graham began raising chickens, primarily to get fertilizer for his land. He gradually enlarged his flock as his locality became one of the country's major broiler centers. By this year he was raising 33,000 broilers annually in lots of 11,000 at a time. With natural gas available for the first time, he was planning to increase his flocks again.

"Farmers here, using their land properly, can produce milk on pasture and also have a profitable chicken business," Graham points out. "The two go hand-in-hand."

When the Benton County Soil Conservation District was organized, Graham did not immediately become a cooperator. He didn't want it to seem that he was receiving any special favors because of his legislative position. For the same reason, he declined to become one of the five original supervisors chosen to manage the district. It was not until April 1942 that he became a district cooperator. He was the one hundred and fifty-seventh farmer in the district to sign an agreement to apply a coordinated soil conservation program to his land. On December 24, 1941, he was elected supervisor, a position he still holds.

Many changes in land use have been brought about by the district's conservation program. Graham lists some of the results as—

Two milk plants, a cheese plant, and a cannery that has been enlarged to take care of the increase in the yield of tomatoes from 3 up to 16 tons an acre. Increases in yields of strawberries and other truck crops. Seven poultry plants that process broilers for market.

It was New Year's Day 10 years ago that George gave up his engineering career. It was then that he quit playing around in a part-time absentee-owner role on his 60 acres in Bucks County, Pa., and with his wife Trudie and their two children started to do exactly what he had always wanted to do—be a real farmer.

For this fresh start on a 259-acre run-down farm, 4 miles from historic Charles Town in West Virginia's eastern panhandle, they had very little money. They substituted an abundance of courage, confidence, and ability, and they needed all these qualities, because the outlook on this cold, bleak holiday was anything but cheerful. Almost before the family had settled down at the farm hard luck struck a cruel blow. As a starter, George had bought a flock of 170 ewes heavy with lamb. While he was trucking them 300 miles to the farm, they were caught in a blizzard and nearly a third of them died.

By drawing on their reserves, the Heidrichs contrived to start anew. What was left of the flock of ewes, plus a carload of Hereford heifers from Kansas City and a registered Domino bull, gave them the livestock foundation for the 100 ewes, 97 Herefords, 100 hogs, and 3,000 turkeys that they own today. George has fattened as many as 720 pigs in a year. He has increased the productivity of his soil until he has some of the best pasture and alfalfa in the valley, and is outstanding as a farmer in a county where good farming is the rule rather than the exception.

The Heidrich enterprise is nearly 100 percent grassland farming, with corn hardly showing in the program. The accent is on alfalfa, brome hay and bluegrass pastures, well fertilized and under good management. A multiflora-rose fence has been started and two farm ponds have been built, largely for stock-water purposes.

The Heidrich story had its start in cities—Philadelphia, Pa., for George, and East Orange, N. J., for Trudie. During the summer, between school years, George worked on a large south Jersey truck farm, where the "farming bug" bit him. By the time he finished high school at 18, he was convinced that he wanted to farm. But



George R. Heidrich.

when fall came he was enrolled in a New York City radio school. There he earned an operator's license and a commission to go to sea. His brother Bob, 16, also was inclined toward the sea, so George gave up his commission to look after Bob; and the two, working as stokers, spent 13 months on the waves.

Having talent and a little training for drawing, George then became a draftsman for a Newark, N. J., engineering firm. He went to night school, studied engineering, and advanced to field supervisor of installations. He met an attractive secretary at the home office, Miss Gertrude Conrad, and in 1931 she became his bride.

George's engineering work took him all over this country and gave him a multitude of useful experiences, but he could not get away from the pesky agricultural bug that had bitten him in Jersey. He read all the farm books and publications he could get his hands on. He kept his eyes and mind open and learned a lot about farming, so absorbed a wealth of new ideas. He never missed an opportunity to visit a livestock farm and talk with the farmer.

In 1937 George bought a 60-acre farm in Bucks County, Pa., and moved there. It became the usual city-farmer deal, because his engineering

work allowed him little time to farm. The operation soon saw George handling a small flock of purebred Southdown sheep and leasing the rest of the place to a farmer.

Of course, this kind of farming wouldn't do. Out of his experiences, reading, and observations during the next few years, Heidrich formulated an idea of the kind of farm he wanted. It must be big enough for livestock, have good soil, be well located in a strictly agricultural area, and be the right place to bring up the children they had adopted—George, Jr., and Gretchen.

They found and bought their farm in West Virginia in the fall of 1940, after selling the Pennsylvania place. On the first day of the year the Heidrichs joyously arrived at their new home—long called The Hermitage Farm—ready to become real farmers.

Even more remarkable than their progress in farming has been their quick and complete acceptance, although outlanders, by farm people of the community—county, State, and elsewhere—as rural leaders. At home George and Trudie are active in community, church, school, and civic affairs, and have devoted much time and effort to help make Jefferson County a better place to live.

Two years after his arrival in the eastern panhandle, George was elected a director of the county Cooperative Wool Pool. Next year he worked effectively to get his county into the Eastern Panhandle Soil Conservation District, and since 1944 he has been one of its supervisors. In 1946-47 he became president of the Jefferson County Farm Bureau and has since served continuously as a director. At the same time has been elected as one of the State Farm Bureau directors, and in 1949 he was reelected.

Meanwhile, George continued to do such an outstanding job in advancing soil and water conservation and the district program that he was appointed to the State Soil Conservation Committee. For 3 years he has been chairman of the legislative committee of the National Association of Soil Conservation Districts. At the organization's 1950 sessions in Atlanta he was elected regional vice president for 12 Northeastern States.

The healthy respect that farmers and other rural people have for unassuming George Heidrich and the confidence that is generally held in his judgment are reflected in the recognition that has come to him as a natural leader.

**CART WHEELS CAUSE GULLIES.**—In India, as in many other poor countries, two-wheeled oxcarts are the most common means of transporting people and goods short distances.



Young gully starting from cart tracks.

These iron-tired wheels cause severe damage to roads and have been worrying the highway departments a long time. The damage is particularly bad in villages where the roads are usually unpaved. When heavily loaded, the carts cut deep, leaving a pair of fair-sized tracks which collect rain water during the rainy season. Where-



Old gully which got its start in a wheel track. Newer tracks show at left.



Sloping meadow completely ruined by gully. It started in cart tracks.

ever such tracks happen to be along the slope of a rolling landscape, the water rushes down along them, cutting deeper and deeper. In the course of a few years, gullies develop and keep on extending.

Indiscriminate running of oxcarts across uncultivated fields and native meadows is also common in India. Lack of a sufficient number of roads is probably the main reason. In such cases, when wheel-track gullies become large, the carters swing a little to the side, because there is always plenty of space available, and start a new track. When these, in turn, create gullies, the carters shift over a little and start new ruts. Within a few years, the process results in a whole series of gullies, which destroy more and more of the better land each year. Vast stretches of land, completely devastated for ages, stand out today as evidence of what can happen due to carting alone.

— P. SEN.

*Trainee, Soil Conservation Service; formerly botanist, Soil Conservation Research, Santiniketan, India.*

## NOTES FROM THE DISTRICTS

**NO MORE BAKED APPLES.**—Three years ago, forest fires ruined the apples on the trees at Henry Brock's fruit farm near Lyman, Maine, because he had no way to fight off the flames. Now, with young tree plantings in the ground, he's getting a faster-than-usual start with new orchards, plus fire protection and spray and irrigation services. These come from the two farm ponds and the three 1,000-gallon storage tanks.

As a result of irrigation, Brock says he is getting heavier foliage and better root systems in his fall-planted stock, and indications are that the trees will come into bearing earlier than usual. While most Maine orchardists hesitate to plant in the fall because of the danger of winter-kill, Brock did not lose a tree. During dry periods, such as in recent years, fall plantings, when the trees are fully dormant, get off to a better start the following spring, says this farmer. That is because the root systems are able to absorb the earliest moisture.

For irrigation, Brock is using a war-surplus pumper, canvas hose, and aluminum pipes.

**SAMPLE SPEAKS FOR ITSELF.**—Soil structure and organic matter was the theme of the summer meeting of the Empire State Chapter of the Soil Conservation Society of America, held in Syracuse and Marcellus, N. Y., August 17 and 18.

Unique feature of the program, which was mailed in advance, was a cellophane envelope containing soil, which was attached to the cover. "Bring this soil with you," the recipient was instructed.

On the back cover was the explanation: "The soil in the envelope is from the Soil Conservation Experiment Station at Marcellus. Measurements show that soil losses there by erosion have been great. We hope that you will not contribute to these losses by failing to return this soil when you come to the meeting. Soil structure and organic matter are building blocks of soil conservation."



This silt was collected in a grassed waterway near Santa Fe.

**GRASSES AGAINST THE RAIN.**—Grassed waterways, or natural drainageways covered with native or introduced grasses, have made their value known to ranchers cooperating with the Santa Fe-Sandoval Soil Conservation District, according to Glenn Burrows, SCS technician.

"During unusually heavy rainfall recently, waterways covered with a protective coat of grass and other vegetative growth suffered little or no damage, while unprotected runoff channels were eroded severely," he said.

"Primarily, the grass covering in the waterway slows the runoff of the water from a nearby hillside and forms a protective mat over the ground," Burrows explained. "However, it also catches silt washed from unprotected areas.

"Recent actual measurements of soil accumulation on 160 acres of good cover grasses on a waterway south of Santa Fe reveal that they caught about 5,000 tons of silt in 1949 from a 10-section runoff area that had not been given proper care."

According to Burrows, the real value of a grassed waterway comes when the area above the drainageway is maintained in good condition by protective coverings of grass. He said the only way a good grass cover could become established is by reduced stocking of livestock and letting the present grasses get a good growth and spread themselves over the area.

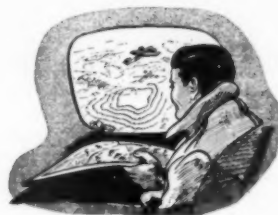
Some 280,000 acres within the Santa Fe-Sandoval district and 100,000 acres under agreement by ranchers on the La Bajada grant have had proper grass management and have suffered little damage from recent heavy rainfall.

**TIPS ON FIRE PROTECTION.**—The value of a firm approach to the edge of a pond was demonstrated at C. E. Cassel's farm near Hummelstown, Pa., when fire fighters permitted flames to destroy only a large implement shed and the farm equipment housed in it. They saved the barn, several small buildings, and farm houses, valued at close to \$30,000, when they kept the fire away from gas and oil tanks. Damage was held to about \$1,000 because the firemen had more than 1½ million gallons of water to use—far more than needed.

A contractor built Cassel's pond in 1947 at a total cost of \$320, in which the main item was \$212 for 17 hours' work with a caterpillar and carry-all. The pond, built

primarily for livestock water, has a surface area of about 1½ acres and is supplied by water from a small spring and some of the surface runoff from about 50 acres.

Firemen told Cassel that they must be within 15 feet of a pond to get the most efficient pumping, never more than 25 feet away. They must be closer when centrifugal or rotary pumps are used and priming is necessary. The end of the hose should be in the pond at a good depth, and should be protected if there is a mud bottom. The pumper should stand on the level. Slopes impair efficiency. Nearby fire companies made test runs to the Cassel farm when the pond was built and had no difficulty getting into effective action there when they came to do real business. Consult your local firemen and work with them in developing the right kind of an approach at the right spot, Cassel suggests.



**THREE DISTRICTS FLY TOGETHER.**—Three soil conservation districts in the Palouse section of eastern Washington and northern Idaho added something new to their annual field days this year. Instead of holding three separate events, as in the past, the districts joined forces and sponsored an air-ground tour of all three districts, as well as the soil erosion experiment station and the soil conservation nursery at Pullman, Wash.

The districts were the North Palouse and South Palouse in Washington and the Latah district of Idaho. Headquarters for the tour was the Moscow-Pullman airport, midway between the Idaho and Washington cities. District supervisors arranged for five commercial airplanes to take participants on the air phase of the tour. Several hundred farmers turned out for the event. About 70 made the trip by air before rejoining the ground party.

Those who never before had seen their farms from the air returned with greatly increased importance of erosion. General comment was to the effect that they didn't know it was "that bad." An Idaho wheat farmer summed up the group reaction with the remark, "I'm glad I didn't see my place from the air first or I never would have bought it."

**FACE-LIFTING SEQUEL.**—The famed Nellie Thrasher farm, near Frederick, Md., continues to improve steadily since the spectacular face lifting in August 1948. Independent appraisers, in their second annual report, made the following condensed observations:

Hay: 30 tons from 22 acres; 95 tons of grass silage from 25 acres of pasture land; 40 bushels of orchardgrass seed (a new side line) from 5 acres; 26 acres of growing hay (alfalfa, timothy, and alsike mixture) in fair condition,



with an indicated yield of one-half ton per acre; 20 acres of permanent pasture (bluegrass and white clover) in excellent condition. The entire hay production, because of the amount of pasture "compares more than favorably with 1949 production. Hay generally in the current season is producing 50 percent of 1949 production."

Wheat: 13 acres, 23.4 bushels per acre, 305 bushels. County average is 18.6 bushels per acre. Government-loan support price is \$2.25 per bushel.

Oats: 6 acres, 50 bushels per acre, 300 bushels. In 1949 the average yield per acre was 40 bushels. Present market price is 90 cents per bushel.

Barley: 6 acres, 66 $\frac{2}{3}$  bushels per acre, 400 bushels. Last-year yield was 20 bushels per acre. The present market price is 95 cents per bushel.

Corn: 19 acres of growing corn, 1 acre more than last year, in excellent condition.

Milk: Operation has been established in DHIA basis for 3 months. Excellent results—"nothing short of miraculous"—primarily due to "proper feeding and elimination of nonprofitable units." In May 1950, it was one of the 25 highest-producing herds in Frederick County, with an average butterfat test of 4.35 and an average production of 43.1 pounds of butterfat per cow. In 1949, with an average of 25 cows in the herd, milk production totaled 224,760 pounds. In the first 6 months of 1950, from 30 cows, the production was 119,228 pounds. Six cows will be fresh from now through December. Seventeen heifers are being raised.

Pond: The farm pond is continuing to produce an abundance of fish. A small portion of the excess has been used to stock two additional ponds.

Real-Estate appraisal: No real-estate appraisal was made this year "primarily because the greatest difference in comparison is obtainable from other appraisals previously made," but, the appraisers note, "It is our conservative opinion that a reappraisal would show an even more favorable condition." The first annual reappraisal, made a year ago, showed \$26,400 as compared to \$13,625, the appraisal made just before the face lifting.

The 1950 appraisal was made by E. Earl Remsberg, Charles Covell, and S. Sayler Weybright.

**FLEXIBLE GRAZING.**—Better control of grass and cows has pushed beef production on the Malcolm Stewart ranch, near Las Vegas, N. Mex., well above the average for the area, says Eamor C. Nord, Soil Conservation Service representative.

Nord, who is working with the Mora-San Miguel Soil Conservation District, reports that Stewart's production of beef per acre will rise above the 15-pound mark during 12 month's grazing. The area average falls below 12 pounds per acre each year.

Nord credited Stewart's success to a flexible grazing program enacted when he took over managership of the 18,700-acre ranch 2 years ago.

"We carry through fewer yearlings and steers but they are of good quality," Stewart said recently. "As a result, our gains per acre actually are greater, although we carry a smaller herd than many ranchers do."

When Stewart took over the ranch 2 years ago, his herd had to go as far as 2 to 3 miles for water. He developed



Nord, at left, discusses with Stewart the value of winter wheat as winter pasture in the Las Vegas area.

one well, four pit tanks, and four dams to bring water within a mile at any point. He cross-fenced his range to give better rotation and control of his herd.

The fences and water developments give Stewart full utilization of his available grasses, which is extremely important this year because of the prolonged drought.

"The control program is paying extra dividends this year," Stewart declared. "My carry-over grass equaled about half of the total production last year, when we grazed 1,000 head. The number was cut to 750 head this year in order to guarantee a good start next year."

His pastures are predominantly blue grama, western wheatgrass, and side-oats grama, most of which is in excel-



The Malcolm Stewarts and Sam, their cocker spaniel, relax at their home near Las Vegas.

lent condition, Nord notes. Some winter wheat is grown primarily for winter pasture.

Trial plantings of tall wheatgrass, intermediate wheatgrass, and weeping lovegrass dot the ranch. The intermediate wheatgrass is showing extra promise as a forage producer for this area. It greens up in January and is still palatable in the summer, giving more grazing than the improved native grasses.

Gradually shifting to a cow-steer-calf operation, Stewart prices his calves at yearlings, while the cut-backs, or those not sold, are carried over to the feeder market or to the 3-year-old class. The system is typical for this area.

Supplemental feeding is done only in the winter when snow covers the range and when protein content of the grass is down. Cake, for added protein, is fed from mid-December until the first spring rain when the grass greens again. Hay is fed only during storm periods.

"The 24-year-old Navy veteran is one of the district's most avid and successful cooperators," Nord said of Stewart recently. "His work on his ranges is showing others what they can do and expect from a top grass-utilization program."



**TRINITY WATERSHED BLANKETED.**—The Fraternity of the White Heron and the Forward Trinity Valley Association pay fitting tribute to soil conservation districts in their 1950 progress report on work accomplished in the Trinity River watershed.

"The all-important Texas soil conservation districts, recognized broadly as the most democratic farmer-land-owner groups, now cover virtually every bit of the 17,500 square miles of the challenging Trinity Valley, or watershed," the report points out.

The only territory in the Trinity watershed not within a soil conservation district is a small patch of San Jacinto County. Seventeen soil conservation districts share in the responsibility for controlling floods on the agricultural land of the Trinity. With Soil Conservation Service help, their job is to control erosion and water runoff on private farm lands of cooperators on Trinity tributaries.

**CONSERVATIONIST PICNIC.**—Lake Itasca not only is the source of the Mississippi River, but it was also the site for the first annual picnic of district supervisors, county agents, and SCS personnel last July. Conservationists and their families, numbering about 100, came from most of the 10 districts of the 2 work groups in northwestern Minnesota.

Excellent talks were made by Superintendent of Schools Wermager, of Fergus Falls, and Rev. O. T. Haaland, superintendent of the Lutheran Memorial Home in Twin Valley. The place of soil conservation in school studies was presented by Wermager in his talk. He pointed out the importance of teaching in the primary grades the principles of soil and resource conservation. He emphasized the importance of instilling in the minds of the students the importance of nature's balance and the penalty paid when this is not respected. Haaland stressed three points of the Creator's commission to man, namely: (1) Inhabit the earth, (2) subdue the earth, (3) replenish the earth. He cited examples of improper land use and the resulting waste. He commended the group on their

contribution to "replenishing the earth" through soil conservation measures. Luther Monson, student from Luther College, entertained with songs and led group singing. Plans have been made for next year's picnic.

—EINAR HENDRICKSON.

**POTENT PICTURE.**—An SCS picture of hairy indigo appeared in the *Atlanta Journal* with a Darien, Ga., date line. Within 3 days, District Conservationist D. C. Chapman and Coastal District Supervisor Clyatt Middleton received inquiries about the summer legume from these places: Georgia—Carrollton, Sardis, Statesboro, Zebulon, Montezuma, Moreland, Cordele, Pelham, Chipley, Adel, Dawson, Cairo, Gough; South Carolina—Greenwood, Estill, Florence, Olar, Greenville, Allendale, Rock Hill; Tennessee—Jonesboro; North Carolina—Asheville; Florida—Alachua.

Wanting to know more about hairy indigo for soil improvement were a bank president, a newspaper editor, a veteran trainee instructor, a vocational agriculture teacher, an SCS technician and nursery manager, farmers, seed dealers, and dairymen.

**EXPERIENCE WITH BROME.**—When neighbors looked at Dick Turrell's new seeding of smooth brome at West Oneonta, N. Y., in the fall of 1949, they laughingly called it a "weed patch." They were accustomed to timothy, alfalfa, Ladino, and even birdsfoot trefoil, and wondered if Turrell's cattle would ever touch the coarse new stuff.

Last July the same skeptics were saying, "Dick has the best hay plantings in this area." The cows love this grass, which is especially good on land subject to spring flooding.

Turrell planted 8 pounds of brome and 5 pounds of birdsfoot to the acre in the spring of 1949. That year it was clipped to kill weeds. Last July the growth was higher than 8-year-old Bob Turrell's head and had a thick undergrowth of clover. The vigorous second growth will be used for a second cutting or for supplemental pasture. Dick Turrell says there should be no cover crop for a new seeding, because smooth brome works better without one.



**MORE GREEN PASTURES.**—The Green Pasture idea keeps catching on in New England. In the 1950 six-State competition for county, State, and regional awards, 3,016 farmers have enrolled. This is a gain of 249 over last year. Rhode Island and Connecticut show declines of 39 and 25 respectively, but the others are up, with Vermont leading through its gain of 194 farmers. The gains of the others are: Maine 29, New Hampshire 60, and Massachusetts 30.

**WINTER INCOME.**—When Jim Aberegg, 26, got back from the European and Pacific theaters of war in 1947, he settled down in Wetzel County, W. Va., where he purchased a 133-acre farm, enrolled in the GI agricultural training work, and started dairy operations. Half the farm is in woods and most of the rest so steep and rough that it will grow only grass for his 18 cows and heifers. Needing extra income, Jim and his dad went to work in the woodlands and have cut over 13 acres. Although most of the trees are old and large beech, usually considered poor stuff, they have produced 50,000 board feet of mine timbers and 20,000 board feet of lumber marketed at \$40 and \$60 per 1,000 feet, respectively. Jim does the work in the woods and his father operates the mill. Jim has fenced the woods to keep the cows out and has planted many young trees, including white pine for future Christmas trees. He has established good woodland-management practices.

**CUCUMBERS.**—John H. Book, owner of Book's Pickle Patch, a Lancaster County (Pa.) Soil Conservation District farm, went into the 1950 season with no fear of drought because he knew he had enough water to meet irrigation needs. Book built a half-acre pond last year and filled it with water piped from a marsh area 1,250 feet away. When pickle crops began to deteriorate rapidly from lack of water, Book hitched his overhead portable irrigating outfit to the pond and gave the "cukes" all the refreshment they needed. Ordinarily the harvest season runs 7 weeks. Through use of an abundance of pond water he prolonged it to 10 weeks. He got better results from his crop, he says, because the pond water was warmer than water pulled from underground.

**EVENTFUL 7 DAYS.**—During the Soil Conservation District Week held in Texas, early reports indicate that 57 districts held 142 tours, with a total attendance of 7,237.

Fifty-seven districts met with civic clubs in a total of 131 meetings, with 9,224 attending.

A total of 192 soil conservation district supervisors and cooperators spoke to civic clubs and other organizations.

An incomplete tally shows that 310 sermons on soil and water conservation were preached on May 21.

A total of 49 district dinners were held in 33 soil conservation districts with a reported attendance of 6,313.

**FIRE DEPARTMENT WANTS MORE PONDS.**—The fire department of Benson, Vt., in Rutland County, places a high fire-protection value on farm ponds. Recently it sponsored a public meeting to interest farmers in pond construction. More than 100 persons attended. Soil conservation district and Soil Conservation Service representatives explained how each helps in farm-pond planning and construction. In the 13 soil conservation districts in Vermont, 665 farm ponds have been constructed by farmer-cooperators for whom complete conservation farm plans have been made.



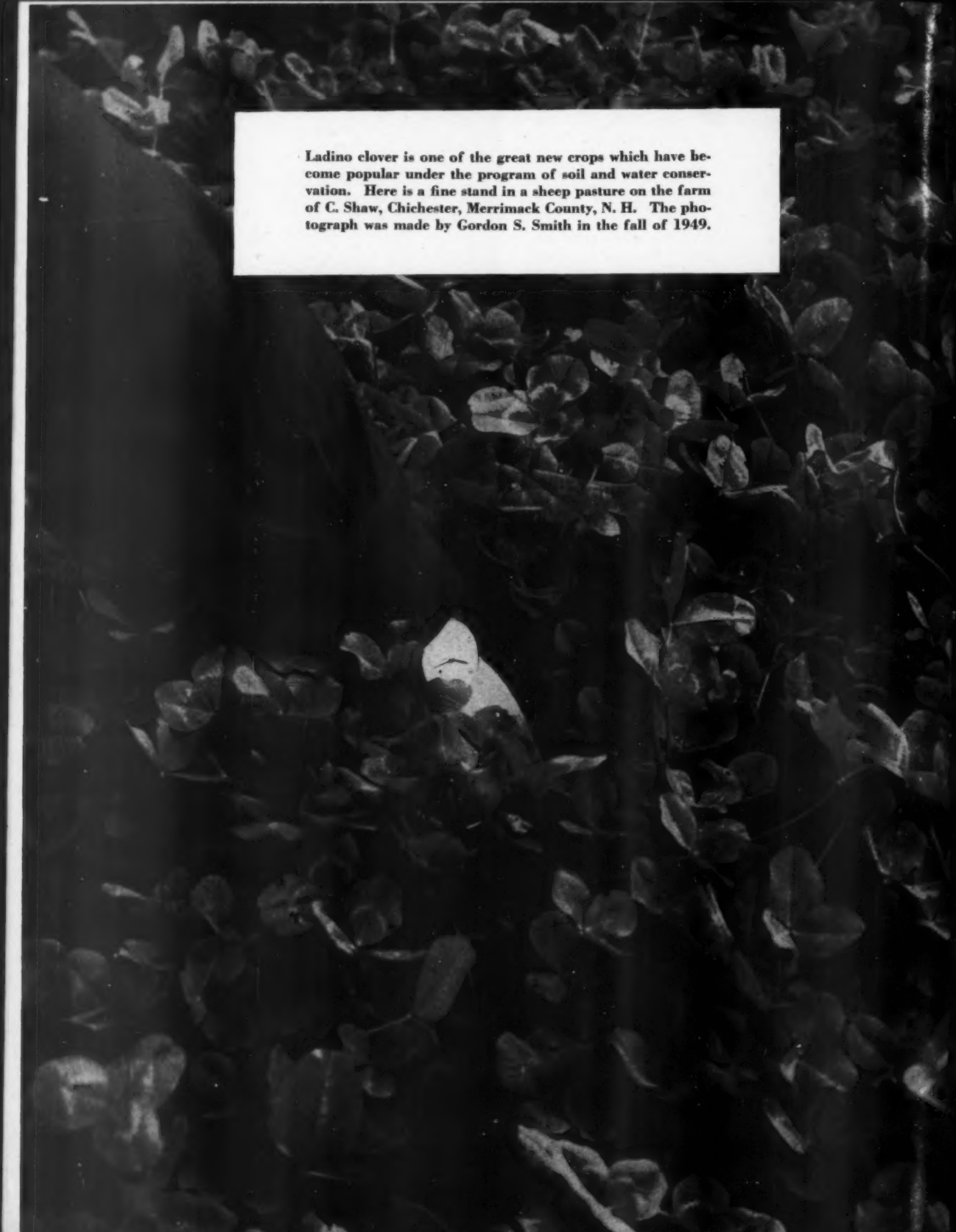
Jim Aberegg finds extra farm income from mine props and lumber.

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Ladino clover is one of the great new crops which have become popular under the program of soil and water conservation. Here is a fine stand in a sheep pasture on the farm of C. Shaw, Chichester, Merrimack County, N. H. The photograph was made by Gordon S. Smith in the fall of 1949.